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General Articles

THE ORGANISATION OF THE VETERINARY SERVICE IN THE U.S.S.R.*

I. V. GUINSBOURG

(CHIEF OF THE GENERAL VETERINARY ADMINISTRATION OF THE PEOPLE'S COMMISSARIAT OF AGRICULTURE IN THE U.S.S.R.)

Veterinary medicine in the U.S.S.R. is entirely under State control and has the following aims: the development of animal breeding; the safeguarding of animal health; control of raw materials of animal origin; organisation of the veterinary and sanitary services in all areas where livestock and raw materials of animal origin are produced as well as at stations, wharves and centres of transportation of animals; control of exportation and importation; protection of the human population against animal diseases transmissible to man; quarantine supervision on frontiers, etc.

The veterinary service in the U.S.S.R. provides for a number of measures relating to prophylaxis, the combating of contagious diseases of animals and to the treatment of affected animals. The application of these measures is financed by the State.

The new socialist regulations of the National Economic Plan of the U.S.S.R., the reorganisation of animal breeding upon these principles and the absorption of small individual enterprises into vast *sovkhozes* and *kolkhozes* necessitated a radical change in the veterinary organisation as well as in the method of working.

The huge breeding farms—*sovkhozes* and *kolkhozes*—allow of the establishment of veterinary and hygienic conditions particularly favourable to management, treatment, feeding, utilisation and reproduction of animals which were not possible in the case of small individual enterprises.

The work of the veterinary surgeon for the small farms run by peasants was confined to the treatment of individual sick animals, to combating epizoötics, and only incidentally to measures designed to limit the severity and spread of disease.

Under the new socialist conditions, these measures for combating separate epizoötics have been replaced by methods and measures of a systematic and standardised nature which should result in the absolute extinction of certain of the most dangerous epizoötics—such as cattle plague, contagious bovine pleuro-pneumonia, glanders, swine fever, etc. For these methods of individual treatment, veterinary medicine has substituted large-scale systems of organisation and application of sanitary, prophylactic and zootechnical methods directed towards a general higher standard in the systematic veterinary and sanitary protection of animal breeding. Inco-ordinated methods and measures have given way to systems of organisation and to the application of standards which operate directly upon production and which aim, in time, to eliminate the causes of losses on breeding farms and conditions hindering normal production of farm animals.

According to the veterinary legislation in force, the organisation and direction of all the veterinary services of the U.S.S.R. are entrusted to the General Veterinary Board of the Commissariat of Agriculture, the Commissariat of Agriculture of the Unionist and Autonomous Republics, the Regional Boards of Agriculture and the veterinary surgeons in charge of districts.

The veterinary "ward," which possesses a hospital, constitutes the unit in any given area. In charge of this "ward" is a veterinary surgeon, who is also in charge of two or three branch stations with assistant veterinarians, consulting stations and first-aid ambulances organised immediately within the *kolkhozes*.

The various departments and organisations dealing with animal breeding, utilisation and transport of stock and the treatment of raw materials of animal origin (such as the Commissariat of the Food Trade, the Commissariat of Sovkhozes and the Commissariat of Highways) have organised a special veterinary service for the execution of Government decrees, and this is under their jurisdiction; they maintain a personnel of specialists who work according to the general plan, following the methods of, and under the direction and control of, the Commissariat of Agriculture and its local organs.

According to the legislation in force, the Commissariat of Agriculture must:

1. Formulate a single plan of veterinary measures for the whole Soviet Union and establish standard methods of application and organisation of such measures, especially those pertaining to control of epizoötics;

2. Organise the veterinary and sanitary supervision of the Soviet frontiers, with a view to

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preventing entry of contagious and parasitic diseases of animals from other countries ;

3. Organise veterinary and sanitary inspection of centres of supply of animal foodstuffs and raw materials of animal origin, both during transit within the country and during exportation or importation ;

4. Organise, and direct the work of, scientific research institutes in the field of veterinary medicine ;

5. Organise a veterinary sanitary and therapeutic service, and establish centres for the preparation of biological products or anything concerning veterinary materials ;

6. Provide for the tuition, registration and distribution of the veterinary personnel of the country ;

7. Work out all the legal problems of veterinary medicine and publish regulations, instructions and memoranda compulsory for the whole Union.

The Commissariat of Agriculture is responsible for general veterinary and sanitary conditions in the whole Soviet Union.

In this way veterinary medicine in the U.S.S.R. is founded on the principle of a united State Veterinary Service, being directed solely by the Commissariat of Agriculture which carries out all the work of organisation of stock-rearing in the country. Here lies the essential difference between the present organisation of the veterinary service and that which existed before the revolution, when the service was centred in the Ministry of the Interior, the functions of which were purely supervisory, having no relation to stock-rearing—the chief concern of veterinary medicine. The Ministry of the Interior of Tsarist Russia was only concerned with supervision of the frontiers to prevent the entry of epizoötic diseases, and with control of cattle plague and contagious bovine pleuro-pneumonia ; there were several veterinary stations on the railways for the purpose of supervising animal transport and, more particularly, for the levying of a tax on the latter. To carry out this work, the Ministry of the Interior had set up only 87 quarantine stations on the Asian and Transcaucasian frontiers, about 531 veterinary stations on the railways and roads, and 815 district veterinary surgeons concerned with epizoötic diseases. The veterinary service of the *zemstvos* made some attack upon contagious diseases and attended to affected animals ; but this service was only organised in certain areas in Central Russia and was non-existent in Siberia, Caucasia and the area of the Don Cossacks. According to statistics for 1912, the *zemstvos* possessed 1,374 veterinary wards (an average of two in each district) and 2,811 *feldschers* (veterinary assistants). In addition to stations responsible for the application of measures based upon scientific methods, and for the preparation of certain biological products (notably anti-anthrax vaccine) the more progressive *zemstvos* also organised veterinary bacteriological laboratories and supplied microscopes to certain district stations for their diagnostic laboratories. Before the revolution there were only 29 Government laboratories in Russia. Within the private governments which possessed *zemstvos*, the central direction of the Ministry of the Interior —through its veterinary inspectors—had little effect other than administrative control of the work of the veterinary personnel of the *zemstvos*, and it had no part in the organisation of the veterinary service. In the case of governments which had no *zemstvos* there were State district veterinary surgeons who confined their attention to the recording of contagious diseases in animals and who had little interest in questions of organisation or appreciation of the methods applied by veterinary practitioners, so that, as these were very few in number, " quackery " flourished.

Along with the State and *zemstvo* veterinary services there was also, in pre-revolutionary Russia, an independent municipal veterinary service which carried out supervision of food industries (inspection of abattoirs and pork factories) and trades in raw materials of animal origin (tanneries, etc.), but this service was poorly staffed and independent of either State or *zemstvo* institutions.

In Tsarist Russia there were only four veterinary teaching establishments, supplying 200 to 250 graduates yearly, and five training schools which released some 120 to 150 veterinary assistants or *feldschers* annually.

In giving some idea of conditions in the veterinary service before the revolution it may be added that in Tsarist Russia there was no standardised veterinary law, while there were no uniform regulations governing measures for control of epizoötic diseases, these being passed by each independent government, without any co-ordination of prophylactic measures. Here may be found the explanation of the vain fight against severe epizoötics (cattle plague, pleuro-pneumonia, glanders, etc.) waged during many years by Tsarist Russia.

Towards the end of the civil war, the Soviet authorities, faced with this great burden, were obliged to establish a new State Veterinary Service whose primary object was to stamp out cattle plague in the U.S.S.R.

The U.S.S.R. is the only country in the world where a true State Veterinary Service exists and where free veterinary assistance is given to the whole population.

Pre-war figures have been far surpassed in all that has reference to sanitary and therapeutic institutes and research and other veterinary establishments existing in the Soviet Union.

At the present moment, within the region of the *kolkhozes* and separate economic States alone, excluding the *sovkhozes*, the system of veterinary institutions shows the following comparison with figures for 1912 :

	1912	1935
Veterinary Wards	1,374	5,600
Branches under *feldschers* ..	2,801	8,000

From these figures it will be seen that, since the revolution, these two classes of veterinary institution have increased by 375 per cent. and 193 per cent. respectively. It is noteworthy that this increase has been achieved not only in European districts, where the organisation had commenced before the revolution, but more especially by the establishment of stations in remote districts, such as the republics and territories of Kazakstan, Kirghisie, Central Asia, Iakoutie, Eastern Siberia, etc., where no veterinary service existed under the Tsarist régime. The veterinary service in the polar regions responsible for reindeer breeding has been created entirely by the Soviet authority.

By the construction, upon a large scale and according to a standard plan, of special establishments for the treatment of animals which ensure qualified treatment and advice throughout their district, the Soviet authority has created a network of veterinary "wards" on a firm technical footing. At the present moment, the Soviet Union possesses nearly 2,000 newly constructed and fitted veterinary hospitals. In the other veterinary "wards," buildings have been adapted as hospitals or for consultation. In addition to this system of wards, which is chiefly for the *kolkhozes* and private enterprises, and which receives considerable State support towards its development, there has been organised within the last few years a special system of veterinary establishments and auxiliary bases on certain farms, making use of the *feldschers*.

Along with this intense development of veterinary "wards" there has also arisen another vast organisation in the U.S.S.R. for the control of the trade in meat and in raw materials of animal origin while these are on transport, at centres of supply and sale (markets, fairs, etc.) and on the Soviet Union frontiers (while on exportation and importation).

The following figures illustrate the development of the veterinary establishments compared with those in the period before the revolution :

	Pre-revolution.	Soviet.
1. No. of inspection and quarantine stations along the Eastern frontiers	87	116
2. Stations on western frontiers (importation and exportation) ..	0	8
3. Veterinary and sanitary stations on railways and waterways ..	351	625
4. Laboratories for examination of hides for anthrax (Ascoli method)	0	92
5. Centres for meat and milk control	0	412

It is noteworthy that along with the growth of the number of veterinary and sanitary institutions, these have also been assigned new functions—in this way the "Ascoli" laboratories have recently been established. Besides the 92 "Ascoli" laboratories, 69 similar sections have been formed near the veterinary bacteriological laboratories.

A powerful meat industry has been developed in the U.S.S.R. during the two "five year plans." Thirteen centres for this industry have been established according to the most modern ideas of construction. The network of large abattoirs, cold stores, cooked and preserved meat factories, etc., has been reconstructed and considerably extended.

This newly-developed meat industry called for a corresponding organisation of the veterinary and sanitary service consisting of special establishments with clinical and bacteriological laboratories, organised directly within the enterprises and run by the most highly qualified veterinary specialists. The present organisation of the veterinary service in the meat industry ensures the highest quality both as regards the perfect hygienic condition of products for sale in the country and for export (bacon, etc.).

The veterinary service has made great progress in the number of scientific research institutes. Instead of the one central laboratory of the Ministry of the Interior, 17 veterinary bacteriological laboratories of the *zemstvos* dependent on the Government, 12 other laboratories, and some few diagnosis centres in the large veterinary hospitals which Russia possessed before the revolution, the Soviet Union has at its command the following scientific and research institutes:

1. The State Institute of Experimental Veterinary Medicine at Moscow, with two branches (for piroplasmosis at Leningrad and for diseases of reindeer at Ijma-Petschora) ;
2. The Institute of Helminthology at Moscow;
3. The State Institute of Veterinary Dermatology at Moscow ;
4. The Foot-and-Mouth Disease Research Station in the Island of Gorodmia ;
5. The Central Laboratory for the Control of Veterinary Biological Products at Moscow ;
6. The Scientific Research Institutes of Leningrad, Kharkov (with branches at Kiev and Poltava), at Kazan, Omsk, Blagoveschensk (with branches at Khabarovsk and Vladivostok), and Obdorsk (for the study of diseases of reindeer).

Besides these large institutions there exist regional experimental veterinary stations in the following towns : Vitebsk, Smolensk, Vologda,

Gorki, Kouibichev, Oufa, Saratov, Simferopol, Novotscherkask (with a branch at Armavir), Piatigorsk (with a branch at Ordjonikidze), Tiflis, Erivan, Ganadgea, Ouralsk, Tashkent, Alma - Ata, Irkoutsk, Sverdlovsk, Verknie - Oudinsk and Iakoutsk.

Three hundred and ten regional laboratories and nearly 500 diagnosis laboratories, organised directly within the veterinary hospitals, *sovkhozes* and the farms, actually function in the U.S.S.R. The Commissariat of Agriculture to-day has at its command 60 travelling bacteriological laboratories for use in the breeding farms in the more distant regions and the national Republics.

At the head of this system of scientific veterinary institutes, as directing centre under immediate control of the Commissariat of Agriculture, is the State Institute of Experimental Veterinary Medicine in Moscow. The latter comprises the following sections with the laboratories :

A. *Sections.*—(1) For the study of equine diseases (with special laboratories) : (*a*) infectious encephalomyelitis ; (*b*) infectious anaemia and (*c*) contagious abortion.

(2) For research into bovine diseases (with a laboratory for diseases of calves).

(3) Microbiological research—with laboratories for (*a*) general microbiology ; (*b*) immunology ; (*c*) specimens ; (*d*) anaerobic infections ; (*e*) filterable viruses.

(4) Protozoology.

(5) Pathological anatomy.

(6) Hygiene—with laboratories for (*a*) animal management and (*b*) genetics.

B. *Laboratories.*—For (1) biochemistry ; (2) physiology ; (3) physiology of reproduction ; (4) pathological physiology ; (5) endocrinology ; (6) pharmacology ; (7) sanitation ; (8) diseases of swine ; (9) diseases of birds ; (10) diseases of fur-bearing animals ; (11) diseases of dogs ; (12) anthrax research ; (13) museum ; (14) vivarium.

C. *Branch Institutes.*—(1) laboratory for protozoal research, at Leningrad ; (2) laboratory for research into diseases of reindeer at Ijma and at Obdorsk.

D. *Bureaux.*—(1) bureau of direction ; (*b*) bureau for study of foreign research reports.

The personnel of the State Institute of Experimental Veterinary Medicine amounted last year to 355, of whom 144 are research workers and 40 pupils. The essential basis of this organisation of research workers in the U.S.S.R. is that all scientific work depends at once upon laboratory research, upon the work in the centres of production and in the vast breeding areas.

Veterinary science in the U.S.S.R. has achieved some important successes. Particular notice should be taken of the successes of the Institute of Helminthology whose work has for the first time rendered possible the organisation of steps against parasitic diseases of animals.

Mention might be made of the preparation of a vaccine against paratyphoid in calves, of a serum against paratyphoid and coli-bacillosis in calves and abortin for the diagnosis of brucellosis. Further, one should note the success which has attended research into equine encephalomyelitis (isolation and study of the biology of the virus and the attempts to prepare serum or vaccine, etc.), into protozoal diseases (isolation and study of the biology of the vectors and the pathogenic agents themselves, treatment of nuttalia in horses with trypaflavine, etc.) and research into the use of tissue extract in the treatment of sterility.

The preparation of biological products is run in an entirely new way. Before the revolution, certain laboratories, in addition to their research and diagnosis work, produced small quantities of a limited number of biological preparations. This work of production was not supervised in any way by the State from the point of view of quality of materials produced. Production is now centred in establishments specially adapted for the purpose and called " biological factories." Twenty-two such specialised factories and one station for the study of foot-and-mouth disease are now in operation ; seven produce cattle plague serum and 15 bacterial preparations and antisera. These establishments employ more than 5,000 persons (specialists, laboratory assistants and workmen). All are constructed and equipped so as to meet all the demands of modern technique. The outlay for these factories, according to the 1935 budget, amounts to 60 million roubles, of which 33 million have already been expended (August, 1935). At the moment, the " biological factories " provide for the production of 27 preparations—including new preparations (vaccines and sera against paratyphoid and diarrhoea in new-born calves, abortin, etc.).

The work in the control laboratories is directed by the Central Control Laboratory of the General Veterinary Board of the Commissariat of Agriculture. Each factory possesses a control laboratory.

In order to regulate the supply of special veterinary materials, drugs, disinfectants, surgical instruments, laboratory apparatus, etc., to the veterinary institutions, the Commissariat of Agriculture has organised a system of depôts and distributing pharmacies. These veterinary depôts are to be found in all provincial and regional centres, while there are branches and pharmacies in all the larger district centres. In addition, many of the veterinary consultation stations have pharmacies which issue drugs free to the people. In 1935, within the Soviet Union there were 63 provincial and regional depôts, 125 branches and 284 pharmacies. In the same

year the outlay for these reached 80 million roubles.

The whole system of veterinary institutions in the U.S.S.R. employs 8,200 veterinary surgeons and some 19,000 *feldschers* in place of 4,142 and 6,828 respectively in Tsarist Russia. It will be noticed that, in comparison with the earlier period, the number of veterinary surgeons has increased 100 per cent. and that of veterinary assistants 180 per cent.

In place of the four colleges and five training centres for *feldschers* of pre-revolutionary Russia, there are now 23 colleges, with 12,500 students, of whom 1,500 qualify annually, and 83 training centres with 12,000 pupils which supply 2,400 *feldschers* annually. The number of veterinary surgeons qualifying from colleges rises each year and should reach 5,000 at the end of the second "Five Year Plan."

The social class of the college students has changed completely. Before the revolution, 80 per cent. were from clerical families; the other 20 per cent. were the sons of clerks or of parents in other professions; women were not admitted. Now, the sons and daughters of the peasants and workmen form 70 per cent. of the total number of students and only the remaining 30 per cent. are the sons and daughters of clerical and professional parents. Women are admitted on an equal basis with men into the colleges and now form 30 per cent. of the students. A large number of representatives of the smaller republics (20 per cent.) are students in the colleges to-day, whereas during the Tsarist régime they were a rare exception among qualified men. The Soviet Union pays particular attention to raising the level of the training of veterinary specialists. The preparation of veterinary surgeons for the special posts in which they may be placed is undertaken by the Institute for Special Training of Veterinary Surgeons in Leningrad, and by courses organised in the large scientific research institutes. The special training of *feldschers* forms a specially organised course at the veterinary training centres. In addition to fully qualified veterinary surgeons and *feldschers*, with their technical training, there has been created a new class of workman with slight veterinary training. These are "veterinary sanitary workmen," and to them the veterinary surgeons allocate the execution of simple tasks—first-aid in urgent cases and the application of the essentials of breeding and prophylaxis. The veterinary sanitary workmen are drawn from the people of the *kolkhozes* and *sovkhozes* and they are prepared for their task in their own *kolkhozes* and *sovkhozes* according to a fixed programme, following a twelve months' course. In the current year (1935) 65,000 sanitary workmen are taking the course.

The State system of the organisation of the veterinary service in the U.S.S.R. necessitates the appropriation of important sums from the State budget. The expenses increase annually. According to the estimate for 1935, the financing of veterinary measures cost over 200 million roubles, that is an increase of 40 per cent. on the previous year. Together with the sums expended by the various economic organisations (State or co-operative), the total for the veterinary service amounts to more than 300 million roubles, *i.e.*, 15 times more than in Tsarist Russia.

The following figures indicate the expenditure of the Soviet State upon the veterinary service during the last five years:—

In 1930, the amount rose to 48 million roubles, in 1931 to 63 millions, in 1932 to 92 millions, in 1933 to 99 millions, in 1934 to 135 millions and in 1935 to 200 million roubles. These figures indicate the importance of the work of the veterinary service in the eyes of the Soviet authorities.

These sums are, for the most part, assigned to the running of the vast network of veterinary, sanitary and therapeutic institutes, to scientific research, to the carrying out of general prophylactic measures and to veterinary propaganda.

Enormous sums, amounting to tens of thousands of roubles, are spent annually, apart from the figures quoted above, in the training of veterinary specialists. These sums form part of the supplementary estimates.

A considerable amount of work is undertaken with a view to disseminating some veterinary knowledge among the peasants and workmen. To this end the most modern propagandist methods are used—cinema, radio, the press, museums, lectures, conferences, elementary instruction in schools, etc.

During the last few years, seven veterinary films have been produced; three hundred reports of work have been published (books and brochures) and more than 8 million copies printed; veterinary and technical propaganda centres have been established, and veterinary museums, etc., in the peasants' clubs and veterinary establishments. Veterinary questions are commonly discussed on the radio.

The organisation of the veterinary service has played a considerable part in the gradual betterment of stock-rearing in the U.S.S.R.

Cattle plague, which raged from time immemorial throughout the old Russian Empire, and which decimated the cattle population annually in many regions, has completely disappeared. Diseases such as contagious bovine pleuropneumonia and glanders in horses, rife before the revolution, have been very nearly stamped out.

[A statistical table is included, relating to the contagious diseases of animals during the years 1929-1934].

The economic consolidation of the breeding farms of the *kolkhozes* and *sovkhozes*, the estab-

CHRONIC GLANDERS*

J. F. BURGESS, M.D., F.R.C.P.(C.),
MONTREAL

Human glanders is a rare disease. Robins[1] (1905), in a very excellent monograph on this subject, succeeded in collecting reports of 153 cases up to that time. Luhrs[2] (1921) believes that only 50 cases of glanders occurred in Germany during the war. Sobol[3] (1933) states that in the Ukraine, where the frequency of glanders in horses is very high, it is a very rare disease in man. In the district about Constantinople it is said that 90 per cent. of horses give a positive mallein reaction, yet human glanders is rare there.

Glanders is a specific, infective and contagious disease, occurring in most parts of the world, and caused by *B. mallei*. It affects, chiefly, the horse mule and ass, and is communicable to man. It may be contracted by inhalation, ingestion, or by direct inoculation of the organism into the skin or mucous membrane. When it leads to a systemic disease, frequently associated with nasal ulcers, and involvement of the lungs, it is known as "glanders"; when the lesions are limited to the skin, it is known as "farcy." Both are manifestations of the same disease. Both types of the disease may co-exist in the same individual, and may be acute or chronic.

Since 1906, there have been some 48 reports of glanders in the literature, which I have been able to trace. A few notes on some of these may be given.

Hoffmann's[4] case of chronic glanders developed the disease as a result of contact with a human case. The infection developed in the elbow, with purulent exudation in the joint. The patient then developed ulcers of the gums, followed by involvement of the soft palate, the posterior pharyngeal wall and the fauces. Extension to the upper lip, with ulceration, occurred. Strauss's inoculation test was positive, and Hoffmann obtained, by means of a modified Wassermann reaction, a positive complement fixation with an antigen of *B. mallei*.

Dudgeon, Symonds and Wilkin[5] reported the case of a man who developed an abscess in the lower end of the right humerus, followed during the next four months by many more abscesses over the body. There was no evidence of nasal discharge, nor was contact with horses established. *B. mallei* were demonstrated only after repeated passages through guinea pigs. There was a negative complement fixation reaction on the first occasion, but a strong reaction was obtained two months later, and a high titre agglutination. He stresses the value of complement fixation and agglutination reactions.

Fischer[6] reports a case of nasal glanders successfully treated with auto-vaccine. The initial onset was influenzal, followed by ulcers (furunculoid in type) on the legs and nose, associated with deafness. In three years, the nose had been destroyed, and there was much scarring of the upper lip. Diagnosis was established on: (*a*) complement fixation test positive; (*b*) glanders bacilli found in the tissues; (*c*) positive guinea pig inoculation with Strauss's reaction; (*d*) ophthalmic mallein test positive. Twelve injections of auto-vaccine were given, with a gradual increase of the dose every three to four days. Fever reactions were present. The ophthalmic mallein test was negative after completion of treatment. Recurrence followed within two months, with unstated results.

Januschke[7] reported the case of a man whose infection began with fever, bronchitis and infiltrations in the subcutaneous tissues of the leg. Foci developed in other areas. Guinea pig inoculations were positive for glanders. The agglutination test was positive in a dilution of 1-100, and the complement fixation test was negative during the formative stage, whereas later, during the healing stage, the agglutination test had an entirely normal value, and the complement fixation was positive. This fact has been noted in horses, namely, that the formation of agglutinin and amboceptor do not go hand in hand.

Watson[8] reports a series of three cases, which occurred in an epidemic in Manitoba in 1922. Many horses were affected with the disease. His first case showed five or six discharging sinuses in the right leg. The *B. mallei* was isolated from the pus. Following injection of anti-mallein serum in one month all discharge had ceased, and the sinuses had completely healed. The total duration of the disease had been one year. The complement fixation test was strongly positive. A recurrence developed in two months, with abscesses in the elbow and head. The doctor in attendance on the case developed an infection of the index finger, as a result of contact. *B. mallei* were identified. Serum treatment was instituted and cure resulted within two months. It is to be noted that where the disease had been diagnosed early and anti-mallein serum used the results were excellent.

Rateau[9] states that glanders may be classically considered as follows: (*a*) Acute farcy with violent general symptoms resembling typhoid; (*b*) acute primary glanders beginning with a picture like acute articular rheumatism; (*c*) chronic farcy, sometimes isolated, sometimes associated with glanders; (*d*) chronic glanders following chronic farcy or chronic primary glanders.

Mendelson[10] states that the disease may remain latent for long periods and he believed that it would be advisable to keep patients under observation for many years, stimulating their resistance by the use of vaccine and proper hygienic methods.

Balogh[11] emphasises the difficulties found in *post-mortem* diagnosis of glanders, acute, subacute and chronic. He did autopsies on seven

*The Canadian Chairman's Address in the Section on Dermatology and Syphilology, combined meeting of the Canadian and American Medical Associations, Atlantic City, June 12th, 1935. Reproduced, slightly abridged, from the *Canadian Medical Association Journal*. 34. 3. 258-262.

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lishment within the separate economic areas of rational methods of stock-rearing and prophylaxis, the unprecedented raising of the cultural standard of the masses, the socialist system of labour, all contribute to the definite attainment of healthy livestock, that is, to the final solution of the problem of animal management—considered to be one of the fundamental issues in the National Economic Plan of the U.S.S.R.

J. W. M., E. C.

cadavers. Diagnosis was made before death in three of the cases. In the other four clinicians had diagnosed a variola vera, sepsis of unknown origin, a tuberculosis with chronic suppuration due to hyphomycetes, and a pulmonary phthisis, and later sepsis due to the tubercle bacillus.

Post-mortem diagnosis by section staining is possible in cases of chronic glanders (according to general experience) only because the patients usually die of new and fresh exacerbations of the disease. The acute changes in the lungs, in the early days of the disease, are likely to become modified and lead the clinician to make a diagnosis of pulmonary tuberculosis. In the fourth case, Balogh did not have his suspicions of glanders raised by the usual microscopic picture of odd lobulated, desquamative, necrotic, bronchial pneumonia, or by articular suppuration, but by the acute exacerbations of the original skin lesions. His assumption was fully confirmed by bacteriological findings. In chronic cases one can count on a progressive, severe necrotic inflammation of the trachea, the main bronchus and several branches.

Contact with horses is, as a rule, necessary for the occurrence of glanders in human beings. It is, therefore, commonly an occupational disease—a point of aid in diagnosis. Robins[1] listed the occupations in which it occurred as groom, soldier, coachman, horse trainer, pathologist, physician and butcher. Inquiry as to nasal discharge, submaxillary enlargements and abscesses in the necks of horses should be made. In man the virus may make an entry through an abrasion of the skin, frequently followed by lymphangitis and then nodules along the course of the lymphatic vessel or in other parts of the body. Glandular enlargements may, but only rarely, break down. The mucous membranes, particularly of the nose, but also of the mouth and genital tract, may frequently become involved. The conjunctiva of the eye has been the point of entry in some cases. In some other cases the site of entry may not be found, and the disease may start as an acute infection, simulating respiratory disease, typhoid or rheumatic fevers.

Acute and chronic glanders vary in the intensity of the process. Acute glanders is practically always fatal; a small percentage of cases of chronic glanders occasionally ends in recovery, although the disease may be long drawn out, over years. Chronic glanders is characterised frequently by periods of acute exacerbations of the process. Where the disease makes its entry through the skin, the primary lesion is a vesiculo-pustule. Where the disease is acute, severe inflammation, with oedema and necrosis, occurs, associated with prostration, pyaemia and death. Generalised eruptions in the skin may occur, of the pustular and crusted types, along with abscess and ulcer formation, which may coincide with pyaemic phenomena. Where the disease tends to be chronic the signs of chronic inflammation are shown locally in marked infiltration, which goes on to abscess formation and ulcers, with, frequently, a tendency to fibrous tissue formation. Great destruction of tissue usually results, as the outcome of ulcerative lesions. Metastatic foci develop commonly in other parts of the body, particularly in the subcutaneous and intramuscular tissues. A common localisation is in the muscles of the calf of the leg. Inflammatory processes in the nose tend to invade the fauces and throat, and much destruction results to both soft and bony tissues. Where the joints are involved the picture tends to be, at first, that of acute rheumatic fever, but the involved joints tend to become purulent. The lungs may be involved, primarily or secondarily, in a bronchiolitic process, or with numerous consolidations simulating tuberculosis, or as pneumonic areas. Foci may develop, where generalisation supervenes, in the spleen and liver. Abscesses have been noted in the brain, causing signs of meningitis. The gastro-intestinal tract is rarely involved, but the organism has been found in a case of gastric ulceration. In a long standing case, amyloid disease of the viscera may occur.

Robins states that there is no essential difference between chronic and acute glanders, except in the severity of the process. It has been frequently attested to in the literature that the virulence of the organism is exceedingly variable. Relative inactivity is common in chronic glanders, and the disease may remain localised, but it is frequently associated with periods of exacerbation and extension. This would seem to be a commonly characteristic phenomenon in glanders. It is further pointed out that periods of latency are not unusual, lasting over a period of some years. The disease simulates tuberculosis and syphilis in this regard. The incubation period in acute glanders is commonly five to six days, but in the chronic forms it may be many weeks.

B. mallei should be sought for in the discharges from open lesions. It may be demonstrated easily in acute glanders and in the acute clinical exacerbations of chronic glanders. In chronic glanders, where the disease is more or less stationary, it is exceedingly difficult to demonstrate the organism. Sometimes the *B. mallei* has been demonstrated in tissue sections, but this is difficult. Cultures should be made on glycerine agar and potato, and inoculation of pus should be made intraperitoneally into male guinea pigs. The characteristic Strauss reaction should be looked for. The organism may be so feeble that two or three passages through guinea pigs are necessary to raise its virulence. Certain other organisms, notably those of the brucella group, may also give the Strauss reaction.

The mallein reaction is specific in horses, and its specificity has been carefully worked out. On the other hand, Topley and Wilson[12] state that in man the mallein test has been used in so few cases that it is difficult to gauge its value. Robins, in his monograph, reports a number of

cases where the mallein test was negative in the presence of proved glanders. A few cases in the other literature are also reported as negative. This may possibly be due to the very low pathogenicity of certain strains of the organism, inasmuch as the virulence of the organism is exceedingly variable. A positive mallein reaction is not an urticarial, erythematous lesion, but a marked cellular and inflammatory response, characterised by a local erythematous swelling with oedema and infiltration lasting 48 hours, and associated with a systemic reaction and fever.

Topley and Wilson state that the complement fixation test is the most reliable laboratory test. According to Reinhardt (1919), there are faulty positives in 4 per cent. of healthy horses, and faulty negatives in 2 per cent. of glandered horses. Watson[8] found complement fixation specific in a high titre in three proved cases. He has observed the reaction in a small number of normal human sera. A further series of controls in both healthy human sera, and also in other human pathological sera, is being investigated. Topley and Wilson state, apparently referring to horses, that the best combination for proof of the disease is the complement fixation test and the conjunctival mallein reaction.

The agglutination test is also used, but its value is more doubtful. A precipitin reaction is thought not to be trustworthy enough for practical purposes.

Case Report

A man, aged 59, who has always resided in North America, a butcher by trade, following discharge from the army in 1919 developed inflammatory lesions in the scrotum. These gradually enlarged, were painful, broke down, and discharged purulent material. Within a year the inner and upper parts of the thighs and buttocks became involved. There was no history of febrile disturbance. In 1923 an exacerbation occurred and lesions developed in the right axilla. In 1925 the left axilla became involved. It is characteristic of the process in this man that the discharge and associated pain varied greatly from time to time, but there had been no tendency for the lesions to recede. The man was admitted to hospital on June 1st, 1934, for investigation, about 15 years after the onset of the disease.

Condition on admission.—The patient was well nourished and healthy. His weight was well maintained. There was no adenopathy. There was a linear scar in the right axilla, where a focus was successfully removed surgically in 1925. In the groin, involving the scrotum, inner and posterior upper thirds of both thighs and perianal portion of the buttocks, there was a curious combination comprised of a semi-keloidal, semi-inflammatory process, through which numerous oblique and vertical sinuses were to be seen. Some of the orifices of these sinuses were dilated, and others were contracted by thickened scar tissue. The left axilla was similarly involved. The inflammatory processes in these areas were more marked at the periphery of the lesions, whereas scarring occurred in the central parts. No glands were to be seen and no bony involvement was present. Careful medical examination revealed no organic disturbance. The urinalysis was normal, and no anaemia was present. The white blood count, on different occasions, showed 15,000 white cells, with a relative increase of polymorphonuclear leucocytes. A sugar tolerance test showed a delayed assimilation. The cardiac, respiratory and abdominal organs revealed normal findings, and there was no organic nervous disease. Nose and throat examination was negative, and there was no history of nasal discharge.

Microscopic examination of pus and scrapings from the walls of the sinuses showed no fungus or yeast organisms. Thorough bacteriological investigation showed many staphylococci, along with a non-pathological diphtheroid. *B. mallei* was not grown. Numerous injections of pus and crushed-up curettings were made into the peritoneal cavities of guinea pigs. All were negative for *B. mallei* and any other pathogenic organism. Repeated passages were made in guinea pigs, without any gross or microscopic evidence of disease. The blood Wassermann reaction was negative at this time. During his stay in hospital, a daily rise of one to two degrees of fever was present.

Two c.c. of mallein injected subcutaneously gave a violent local and general reaction, with fever which lasted 48 hours. This dose was excessively large. Later doses of 0·2, 0·1, and 0·5 c.c. were injected intradermally. Each test showed a marked local reaction, with an accompanying rise in temperature of 102 to 103° F., associated with a feeling of pain and tension in the lesions. At the site of each injection an area of erythema developed within 24 hours, with oedema and infiltration, associated with swelling of the arm. This acute phase lasted over 48 hours. The nodular, inflammatory zone at the site of injection lasted for one month. One of these lesions (0·1 c.c. mallein) was excised after seven days. [The histological report of this lesion is given.]

Lymphogranuloma inguinale was excluded by means of the Frei test. This was completely negative on two occasions. Control tests on three cases of lymphogranuloma inguinale, using this antigen, were positive. A portion of tissue was removed from the margin of a lesion for histological report [given].

Specimens of blood were sent to Dr. E. A. Watson, Chief Pathologist to the Animal Diseases Research Institute of Canada. A complement fixation test for glanders was strongly positive (4-plus). It is well known that previous mallein tests may give rise to antibodies in the bloodstream, and thus provoke a positive complement fixation and agglutination test. It has been shown by Brocq-Rousseau, Forgeot and Urbain that the antibodies disappear and the serum returns to normal in 45 days in horses. The test, therefore, was repeated at the end of three months, when it was again found to be strongly positive (4-plus). At this time, the patient was readmitted for further investigation. We were unable to demonstrate the presence of the *B. mallei*, in spite of repeated attempts during his second admission.

The Wassermann reaction had been reported as positive on certain occasions during the past 15 years. While in hospital, numerous Wassermann tests were done. There was a remarkable variation in the reports. The tests were usually reported negative, but on some occasions negative reactions became positive within intervals of two days. It was considered that these positive reactions were probably the result of non-specific antibodies present in the

blood stream, and not due to syphilis, of which no other evidence was present.

This patient has had a good deal of treatment in the past 15 years. Anti-syphilitic treatment, consisting of arsphenamine injections, was given without any change in the condition. Pot. iodide in large doses was given, with no obvious results. Ultra-violet and X-ray exposures were of no avail. Total excision of the area in the right axilla had eradicated the disease in that location, and numerous incisions for evacuation had been made in other areas, with only temporary relief. All local treatment of various forms had been used without success. In view of the excellent results obtained by Watson with anti-mallein serum, it was decided to institute this form of treatment. Over a period of two months the patient was given subcutaneous injections of this serum in doses of 2·5 c.c. to 10 c.c., every three or five days. At the end of a month considerable improvement had taken place in the inflammatory zone about the lesions in the axilla, with lessening of the discharge. In some areas the inflammatory process entirely disappeared, with resulting fibrosis. Shortly after, the treatment was discontinued, as the patient left Montreal. In January, 1935, after two months' treatment, when there was clinical improvement, a serological test gave a 2-plus complement fixation with glanders antigen. In April, 1935, following two months' cessation of anti-mallein serum, a complement fixation test showed reversion to 3-plus.

The curability of chronic glanders, according to Robins, has been greatly over-estimated. Gaiger,[13] in a long personal experience over some years, believed that sunshine and fresh air were of primary value in the cure of this disease. Mallein has also been used in a therapeutic sense to stimulate antibody production, with value, apparently, in some cases.

Comment

The clinical picture suggests a chronic infection, as lymphogranuloma inguinale, granuloma inguinale, tuberculosis, syphilis, and other mycotic and yeast infections. All these, we believe, were excluded. The diagnosis of glanders was made. The clinical picture of a chronic, purulent infection associated with sinus formation, and with exacerbations at long intervals, would seem to support this diagnosis. The mallein reaction was strongly positive, and this was associated with markedly positive complement fixation. Investigation is continuing as to the specificity of the mallein reaction in man, and also the value of the complement fixation test. These have proved to be specific in horses, but sufficient evidence has not yet accumulated as to the specificity in human individuals. It is of interest to note the serological evidence of improvement due to anti-mallein serum, of which there was some clinical evidence. The chronicity and marked fibrotic element evidently precluded success by this method. The case is reported to draw attention to the clinical and laboratory diagnostic difficulties of this rare disease.

I am indebted to Dr. E. A. Watson, Chief Pathologist to the Animal Diseases Research Institute of Canada, for serological tests and valued advice in the investigation and report.

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The Medical Journal of Australia (June 13th, 1936. Vol. I—23rd year—Number 24. Pages 824-825) makes reference to the foregoing communication and deals further with the interesting and important subject of "Human Glanders" in the "current comment" section of that issue as follows:—

The causative organism of glanders is *Pfeifferella* (*Bacillus*) *mallei*. Most warm-blooded animals may be infected by the organism, except the ox, pig and white mice. The disease may be transmitted to man from infected equines, and very rarely from infected human clothing. Carnivora contract the disease from eating infected horse flesh, but there are no records of infection conveyed from carnivora to man. Glanders was once very common, but in recent years it has become rare. This is largely due to more thorough veterinary supervision and the systematic use of the Mallein test. Although Australia would appear to be free, in these days of rapid air travel an infected human being from India or the East Indies might readily gain access to the Commonwealth. Professor S. H. Gaiger has described his own experiences as a sufferer from the disease. Infection was sustained during the examination of exudate from a pony in India suffering from glanders. The path of entry of the infection was seemingly the gastro-intestinal canal. The disease lasted well over four years, during which a relapse followed apparent recovery. Gaiger considered that fresh air and sunshine were of the greatest value in treatment.

He eventually recovered after numerous operations.

After reporting the observations of Burgess, the "comment" concludes:—

"Australia has hitherto escaped a visitation of glanders, but there is no certainty that it will always do so. J. Douglas Stewart states that in 1891 some circus horses landed in Australia from America were found to be infected with glanders, but were promptly destroyed without any spread of the disease. An allied disorder is melioidosis due to *Pfeifferella* (*Bacillus*) *whitmori*. This disease occurs in countries adjacent to the Indian Ocean. It resembles glanders and, in man, is generally fatal. It occurs naturally in rodents or in dogs and cats preying on rodents. This disease also may yet invade Australia."

GRADED MILK IN SOMERSETSHIRE

With a view to assisting the production of graded milk in the county and encouraging the elimination of tuberculous cows from herds, the Somerset County Council have decided to carry out, through their whole-time and part-time veterinary staff, all veterinary examinations of Grade A or Accredited herds under the Milk (Special Designations) Order. Payment for the service is to be made to the Council on the following scale: (*a*) For herds of not exceeding ten cows, 3d. per quarter for every cow; (*b*) for herds exceeding ten cows, 4½d. per quarter for every cow. As regards veterinary examinations and tuberculin tests of tuberculin tested herds, payment is to be made by the producers at the rate of 1s. 6d. per half-year for every animal in the herd. This charge includes tuberculin but does not cover the cost of the prior tuberculin test of animals added to the herd. General advice, including tuberculin testing, is also to be given to any milk producer in the county who is desirous of ridding his herd of tuberculosis and is willing to take such action (including the removal of all reactors) as the County Veterinary Officer may advise. The producer will be required to pay the cost of the tuberculin required and also, if he decides not to remove the reactors, a fee in respect of the test according to the above scale. As already announced in our columns, a whole-time assistant county veterinary officer has been appointed by the Council, at a salary of £500, rising to £650, with travelling expenses, to assist in the work.

* * * * *

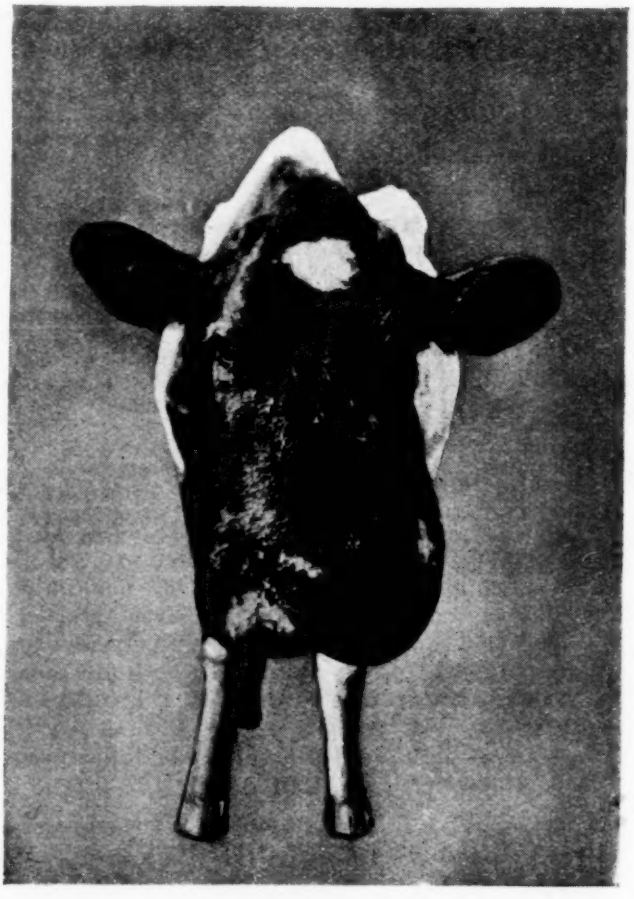
NEW MILK ACT SUGGESTED

Dr. Tocher, in his report to Aberdeen County Council, said the view was now generally held that there should be a separate Milk Act and a new Food and Drugs Act without any provision regarding milk. Not only would the Act provide standards for ordinary milk but also for milk of the various grades such as certified milk and pasteurised milk, the quality of which was controlled at present by regulations.

The sellers of milk should be allowed to give their own warranties, but in the absence of any warranty supplied by the seller there should be an implied warranty that the milk contained at least, say, 3 per cent. butter fat and at least 8·5 per cent. solids not fat. The exact proportions of these constituents need not be embodied in the Act of Parliament.

Clinical Note

"ACTINOMYCOSIS"



We are indebted to Mr. Howard, of Ennis, for the above photograph of a cow's head affected with "actinomycosis." The animal was first treated in 1930 and recovered almost perfectly, but in 1931-1932 it again required treatment to which response, although good, was not complete. The cow was without treatment after that time and the disease progressed until 1934 when destruction was advised. During the whole of the period the cow appeared otherwise healthy, calved in 1931, 1932 and 1933, and milked well until the end of 1934.

Milk bottles are often insanitary and dangerous, reports Clydebank's chief sanitary inspector. The day of the bottle is past, he says, and a carton system of distribution is the method of the future. Cartons, he states, are hygienic, fairly cheap, can be filled and sealed by machinery without handling in any way, and can stand a fair amount of rough usage. Once these cartons leave the creamery or dairy they never return, and usually serve the purpose of lighting the fire

Abstracts

[Relative Value of Raw and Heated Milk in Nutrition. Mattick, E. C. V., and Golding, J. (1936.) *Lancet*, **230**, 5881, pp. 1132-1134, 2 tables, 2 figs. (3 refs.).]

The authors detail the effects of feeding rats at weaning on diets of biscuit made from flour and water with (*a*) raw, (*b*) freshly sterilised, and (*c*) kept sterilised milk during a prolonged experiment.

No second generation could be weaned from group (*c*) and no third generation was weaned from group (*b*). The does in group (*a*) all produced litters at first mating up to the third generation. Later generations were not regular in their production of litters at first mating but seven generations were produced in this group. None of the pups of the last generation were weaned as the does failed to lactate.

A comparison of the rate of growth and average weight at similar age is shown for bucks and does in each group by one table and two figures. The highest average weights were in the one generation of group (*c*). The lowest weights occurred in the second generation of group (*b*). In group (*a*) weights were lowest in the third generation and then improved, becoming stabilised, however, at a much lower level than the original average weight.

Estimations of the red blood cells and haemoglobin content of the blood made towards the end of the experiment showed that young (110-117 days) experimental rats had a tendency to anaemia as compared with stock rats. This difference disappeared at about one year of age. An analysis of the bones of rats of the second generation of groups (*a*) and (*b*) showed that the bones of the former contained more ash and calcium than those of the latter group. Only doubtful signs of carious teeth were found in one doe and none in a buck of the seventh generation of group (*a*).

C. V. W.

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[Filterable Form of the Tubercle Bacillus.* Soparkar, M. B.]

The author has conducted several experiments using autolysed sputum containing human bacilli and ground-up tissues of animals inoculated with virulent bovine bacilli for filtration and subsequent inoculation of the filtrate into guinea-pigs, later making successive passages of the material in series from guinea-pig to guinea-pig. The positive results obtained were based not merely on the finding of acid-fast bacilli in the inoculated guinea-pigs, but on isolation from them of pure cultures of acid-fast bacilli obtained in six out of ten experiments, and five of these strains were studied. Filtrates from three sputa containing human bacilli and two animal tissues containing bovine bacilli yielded through guinea-pigs pure strains which differed from the original strains and showed pathogenic characters resembling the avian bacillus, and in broth they produced homogeneous cultures. In two instances an intermediate stage was also found in which the strain was non-pathogenic to the guinea-pig, rabbit and the fowl. Similar results of filtration experiments yielding avian-like bacilli have been obtained by Valtis, Nègre and van Deinse.

The completely negative results of twelve control experiments wherein 117 healthy guinea-pigs were exposed to similar laboratory conditions as the filtration animals rule out the possible objection of accidental infection of experimental guinea-pigs. These results point to the presence of a filterable form of the tubercle bacillus which can be recovered from inoculated guinea-pigs and yields pure cultures of acid-fast bacilli. These bacilli differ from the original strains and present varying biological characters and often resemble the avian tubercle bacillus.

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[The Metabolic Method for the Identification of Bacterial Species.* Davis, J. G.]

The biochemical methods used for identifying bacteria consist very largely of growing them in various media and detecting the end products of metabolism. Saccharolytic bacteria are identified largely by their ability to produce acid from certain sugars, acetyl methyl carbinol from dextrose, etc. A common cause of discrepancies between laboratories is the different conditions under which these tests are made. Futher, these tests involve the growth and "dying out" of bacteria—*i.e.*, cells in all three phases of growth are present. Changes may be due to exogenous, endogenous or both types of enzymes. A considerable time elapses before all the tests are completed.

A metabolic investigation in the Warburg-Barcroft apparatus necessitates only a massive pure culture in a liquid medium. This is examined for purity, and aseptic precautions are then no longer required. The bacteria are centrifuged off, washed, and emulsified in suitable buffer solutions. Manometric measurements in the Warburg vessels are made for 1-2 hours and micro-chemical analyses performed on the final suspensions. Various aspects of metabolism may thus be studied quantitatively.

In effect, the "metabolic method" provides a quick, more rigorously standardised and repreducible method of carrying out most of the "biochemical" tests in use in bacteriological laboratories. The many factors causing variations in the results obtained in different labora-

*Abstracts of communications made to the Second International Congress for Microbiology, London, July 25th-August 1st, 1936.

tories are reduced to one—the previous life-history of the micro-organism, the nature of the culture medium used in this technique being the most significant factor in this.

The method is of particular use in differentiating bacteria which are superficially alike—*e.g.*, the normal and a- varieties of *B. delbrucki*.

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[On the Cultivation of the Virus of Foot-and-Mouth Disease.* FRENKEL, H. S.]

The virus of foot-and-mouth disease can be grown easily in the skin of the embryos of the cow and of the sheep. The method of cultivation is based on that of Carrel for vaccine virus and that of Maitland and Cowen Maitland for the viruses of vaccinia and foot-and-mouth disease.

The uterus of a pregnant cow or sheep, which has just been slaughtered, is removed with strict aseptic precautions after cauterisation of the skin. The embryo is removed and its skin is immediately minced, first with scissors and then in a mincing machine. Filtered virus and Tyrode's or Ringer's solution is added to the minced tissue. After two, three or four days' incubation at 37° C. the culture is tested as usual in the pads of guinea-pigs. The titre of the culture rarely exceeds 1 : 1000.

The cultivation of the virus succeeds also if instead of mincing the skin one inoculates it *in situ* by scarification before the embryo is removed from the uterus. Yet another method is to inject the virus into the umbilical vein of the embryo preferably with a little trypan blue so that the inoculum may be traced to the skin.

Embryo skin after a short treatment with cooled alcohol (55 to 70 per cent.) or after seven days in cold storage can still be used for the cultivation of the virus or of the tissues (fibrous, epithelial). Bacteria resist the alcohol treatment.

Cattle and pigs have been successfully immunised with the cultures and their serum has shown good protecting power.

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[Observations on the Morphology of Viruses with Special Reference to the Virus of Psittacosis and the Bearing of these Observations on the Nature of Viruses.* BEDSON, S. P.]

The early work on the morphology of viruses was unconvincing because means had not been found of proving that the forms seen were the virus. The use of the centrifuge for this purpose, already indicated by the work of Ledingham with fowl-pox and vaccinia, made possible the identification of the Levinthal-Coles-Lillie bodies with the virus of psittacosis. Levinthal noted that psittacosis virus exhibited pleomorphism. Observations made on this virus both in stained preparations and in the living state in tissue cultures have shown that multiplication is associated with morphological changes which follow a definite sequence. The virus grows in the cytoplasm of susceptible cells in circumscribed colonies enveloped in varying amounts of basophilic homogeneous inclusion material. From these studies it is concluded that psittacosis virus is a living micro-organism with an intracellular habit of life, in fact a highly specialised parasite. Morphological evidence suggests that the inclusions seen in trachoma which many consider to be formed by the virus of this disease, are cytoplasmic colonies of a virus which closely resembles psittacosis morphologically. Thygeson has shown that the virus of "inclusion blenorrhoea" and the so-called "swimming bath conjunctivitis" is filterable and that, when multiplying, it exhibits the same sequence of morphological changes as does the virus of psittacosis. It is argued by some authorities that these findings have no bearing on the nature of viruses since the agent of psittacosis and those like it are rickettsia and not viruses. This implies a knowledge of the nature of rickettsia which one does not possess. In any case the methods used in the study of psittacosis virus should be applicable to some of the larger viruses whose nature still remains obscure.

*Abstracts of communications made to the Second International Congress for Microbiology, London, July 25th-August 1st, 1936.

WEIL'S DISEASE FROM RAT-INFECTED WATER

A miner's wife, the mother of four children, has been awarded £600 compensation at Newcastle County Court following upon the death of her husband which occurred on June 25th last year, about ten days after he contracted Weil's disease, as the result of working in water which had been infected by diseased rats in Broomhill Colliery, Northumberland. His food, it was stated, had also been liable to infection by rats. Dr. J. Charlesworth, for the Broomhill Colliery Company, Milburn House, Newcastle, said that it had not been admitted by the company at first that Luke died from Weil's disease, but medical men had recently found the germ in one of Luke's kidneys and therefore the company was satisfied that death was due to the complaint and agreed to the award.

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"WHERE AND HOW TO RIDE IN AND AROUND LONDON"

To meet the ever-increasing demand for authentic information as to the riding facilities that exist in and around London, the National Horse Association of 12, Hanover Square, London, W.1, have issued, under the above title, an illustrated book (1s. 2d. post free) which not only gives a full list of the 207 riding schools within a 20 mile radius of London, but also contains maps showing their positions, and the commons, heaths, parks, etc., where the sport of horse riding may be enjoyed.

Articles are contributed by Sir Walter Gilbey, Major H. Faudel-Phillips, Mr. Horace Smith, etc.

Report

NIGERIA

ANNUAL REPORT OF THE VETERINARY DEPARTMENT FOR THE YEAR 1935

This report, like its predecessors, conveys the impression to the reader that virility and progress are the key-notes of the Department, despite reduced facilities caused by financial stringency in recent years. When the writer of this notice was a member of that Department, some years ago, the slogan used to be "up against it in Nigeria." That slogan has had its fruits in the present state of efficiency of this relatively small Department. It has overcome most of the initial difficulties encountered in suppressing such diseases as rinderpest, pleuro-pneumonia, blackquarter and anthrax by adopting a policy of wholesale active immunisation at the outset and sticking to it grimly. Now the Department is able to devote a good deal of its time to consolidating the ground won by improving the physique of the animals and developing the economic side of the livestock industry. Ten years ago rinderpest was rife in Nigeria; to-day its incidence is comparatively negligible, since most of the cattle are now immune.

On the husbandry side much attention has been paid during the year to the selection of suitable types of animals and the castration of unsuitable ones, with the purpose of raising the standard of the indigenous breeds. The time has not yet arrived for the importation of British or other breeds. Much useful work has also been done on the improvement of animal products, particularly hides and skins, meat, milk and clarified butter fat. The improved quality of hides and skins alone has resulted in an increased revenue to the country of £53,265 over the previous year.

There is little new to record in the disease-control section of the work of the Department. The double inoculation of virulent blood and serum still continues to be the principal method of immunisation against rinderpest, though formalinised spleen vaccine is used to give temporary protection to slaughter cattle in transit through the country from infected neighbouring territories. Trypanblau is added to the virulent blood *in vitro* to reduce the risk of red-water transmission in the double inoculation method, with apparent success. The resuscitation of latent trypanosomiasis and red-water, coupled with heavy rains and poverty, were the chief causes of mortality following double inoculation for rinderpest, but despite this the average mortality was only 2·5 per cent. Vaccination against pleuro-pneumonia with attenuated culture has been satisfactory; similarly, vaccination against anthrax with saponinised spore-vaccine, against blackquarter and haemorrhagic septicaemia by vaccines not described have also given satisfaction. A heavy mortality from fluke disease in goats occurred in one district. Demodectic mange and streptothricosis in goats are very prevalent. Tartar emetic treatment for *T. vivax* infection has given good results.

Owing to staff reduction, laboratory work was confined to routine diagnosis and the preparation of various biological products. A very interesting account, however, is given of the satisfactory use of carbolised infected sheep's brain as a vaccine against rabies.

W. K.

N.V.M.A. Divisional Report

SOUTHERN COUNTIES VETERINARY SOCIETY*

SUMMER MEETING AT TIDWORTH

The Standing Operation for Roaring (Major C. H. S. Townsend)

The Summer Meeting of this Society was held on Friday, June 19th, 1936, at the Station Veterinary Hospital, Tidworth, by kind permission of the Officer Commanding, Troops, Tidworth. Fine weather favoured the occasion and a most enjoyable afternoon was spent.

The members were greeted by Colonel Holness, D.S.O., A.D.V.S., Southern Command, and Officers, R.A.V.C., Tidworth Area. Various types of Army horses were shown, with and without equipment—cavalry mounts, officers' chargers, gun teams, pack horses, infantry officers' mounts, etc. The members were impressed with their fine condition and suitability for their work.

Major C. H. S. Townsend, *O.B.E., M.C.*, F.R.C.V.S., performed the operation for roaring, standing. The horse was rather fidgety, but the operation was expeditiously carried through without a hitch. Major Townsend's ingenious method of securing the dilator, and his special burr, were points of great interest.

The members inspected a troop stable, while the cooking of maize, linseed, etc., attracted attention.

Business Meeting

The business meeting was held at the Officers' Club, when Mr. J. F. D. Tutt, President, was in the chair and there were present: Miss Cust, Colonel Holness, Majors Townsend, Sparling, Bamford, Howard, Captain Coulden, Messrs. F. Beckett, N. S. Barron, G. Warnock Begg, G. N. Gould, H. C. Rockett, J. D. MacLauchlan, W. D. Milligan, J. B. Tutt, J. B. White and H. S. Caldwell (Hon. Secretary). Visitors in-

*Received for publication August 15th.

cluded Dr. Scott, Messrs. J. C. Coleman, A. C. Duncan, J. R. Hewer, J. Richardson, R. Tindle and N. R. Turnbull.

The receipt of apologies for absence from Sir F. Hobday, Colonel Tillyard, Major Martin, Messrs. Ripley, Klyne, Blount and Campbell was announced.

The minutes of the previous meeting at Salisbury, as published in the *Veterinary Record*, were taken as read and confirmed.

Nomination.—The nomination for election to membership of Mr. K. G. Morgan, of Southampton, was proposed by Mr. G. N. Gould and seconded by Mr. G. Warnock Begg.

Correspondence.—Correspondence was submitted regarding the resolution passed at the March meeting and the reply from the Council, N.V.M.A. This expressed agreement with part of the resolution but, regarding the Investigation Officers, the Council did not consider the time opportune to re-open the matter of their duties, the feeling of the meeting being that there was now every reason to hope that these had been placed on a satisfactory footing, under the recently-issued instructions, in so far as their relationship with the practitioner was concerned. If, however, any specific complaints should be brought to their notice, the Council would be pleased to go into them.

The Secretary thanked the members concerned for their co-operation in the completion of the questionnaire regarding free treatment of sick animals of the poor.

Correspondence with Mr. W. P. Blount relative to the formation of a Sussex Division, N.V.M.A., was discussed. The Secretary had offered to call meetings of the Society in Sussex, if it was thought that this would be of any help.

Mr. G. Warnock Begg said he was present at the Sussex meeting and put forward the case for the Southern Counties and South-Eastern Divisions, but it was decided to form a new Division. Whether it would be large enough to be a success remained to be seen.

A letter from Mr. E. P. Edwards was submitted. It referred, firstly, to a proposal to support the invitation of Bournemouth for the N.V.M.A. Congress, 1937; secondly, to the small proportion of practitioners in the Southern Counties who were members of the Society of Veterinary Practitioners.

The Secretary said he had a supply of cards for application for membership of that society and would be glad to complete them if there were any recruits.

Another letter submitted by the Hon. Secretary was from Major Martin, of Christchurch, enclosing a circular letter sent out to veterinary inspectors by the County Medical Officer of Health for Hampshire. The enclosure stated that the County Council had recently successfully prosecuted a herd owner for failing to notify the existence of tuberculosis in five cows forming part of his milking herd, and it expressed the hope that this example would encourage veterinary inspectors to take a similar action where there had been obvious negligence by an owner.

Major Martin suggested that a reply should be sent stating that so long as the County Council continued to employ part-time veterinary inspectors they might be relied upon to continue to do their duty in such cases, and he added that personally he had always been only too willing and anxious to report cases of concealment if given the opportunity to find them.

In the course of the brief discussion that ensued the opinion was expressed that the circular letter sent out by the County Medical Officer was, in reality, only intended for information and was in no sense any reflection on the way part-time veterinary inspectors were doing their work. It was eventually decided that this communication did not call for any action.

Major Townsend on the Standing Operation for Roaring

Invited by the President to say a few words about the operation he had just performed, Major Townsend said he did not want to start a discussion, because he thought there had been many papers read and more discussions on this particular operation than on any other surgical condition during the last few years; there were, however, one or two points he would like to bring out. In the first place, he wished to say that he made no claim whatever as to what he had done being an original method and he had very little to say about its technique, as it differed very little from the ordinary operation with which they were all familiar. He first saw this operation performed in the standing position when he was at college, in 1913, by Professor Wooldridge, who, as far as he could remember, used stocks for restraint. Professor Wooldridge had fully described it in his "Encyclopædia of Veterinary Surgery," and except for one or two differences in operative technique he had performed the operation that day in exactly the same way. He himself did it standing on a number of horses at Aldershot in 1925, but for one or two reasons he did not continue with it. The reasons why he had started doing it again in the standing position were, briefly: firstly, because he had seen Professor Frost—who, as they knew, was a well-known American veterinary surgeon—perform it at Belfast at the Congress last year, and secondly, because of its popularity in America, where he had just spent a month and where a large proportion of the operations for

the relief of roaring were performed in the standing position. He believed an American veterinary surgeon occasionally came to this country and did a few horses and therefore there must be a demand by some owners to have the operation done standing. If this was the case, it appeared to be worth their while to make themselves proficient at performing it in that manner, if asked to do so. This year he had performed the standing operation on eight horses, and in case they might meet with any difficulties as regards the quietness of the horse, he might say that the horse he had done that afternoon—taking it as a guide—might be deemed rather more fidgety than usual. Only one of the eight horses he had done had been more fidgety than this particular animal, and most of the others had been very much quieter. They could, he thought, rely on any normal hunter which had hunted three or four seasons, unless he was very nervous, standing absolutely quiet for the operation.

As regards the reasons for and against the standing method, he thought that in its favour was the fact that the danger of casting, especially in old animals, was eliminated. It should also be of use in civil practice where labour and casting facilities were not always available. Against the use of the standing position was the delicacy of the operation. There was no question that except in a quiet animal one could not perform the operation quite so precisely as one could in the recumbent position. But when the animal was quiet he saw no reason why they could not perform it equally well with the animal standing. In addition to this, it was not an easy operation to do on very small animals, and it should not be attempted with those which were nervous or vicious. Its usefulness was therefore to some extent limited; nevertheless, he considered it should be taught and that they should make themselves conversant with both methods.

Questions having been invited, Mr. Beckett asked whether Major Townsend still believed in leaving the animal free following performance of the operation, as most of the animals he had seen done had been on pillar chains for three weeks and, as a result, loss of condition was very marked.

Mr. Coleman, having thanked Major Townsend for "a very interesting and expeditious demonstration of surgery," said the only comment he had to make was that he was glad to hear him say it was a very delicate operation and that in many cases it was not judicious to perform it standing. He had never carried out the standing operation himself, but he had seen it done many times and each time a little slip had been made, the result of which might have been very serious if the animal had not been under complete control. He believed Major Townsend stressed the importance of the edges of the mucous membrane being in exact apposition to each other after removal of the pouch, and he should say that was more easy to obtain if the animal was under complete control, than in the standing position.

Mr. Hewer, who also expressed his thanks to Major Townsend for his demonstration, asked if he had tried it on thoroughbreds or simply on hunters.

Mr. G. N. Gould, jun., said that Major Townsend's demonstration left little room for discussion: he greatly admired the surgical skill shown them that afternoon. He had performed the laryngeal operation on a number of hunters over a period of years, but always in the recumbent position: his next case he would try standing. He would be interested to hear Major Townsend's experience of oedema of the larynx after this operation and whether his method of operation was associated with a greater or less tendency to this condition.

Dr. Scott observed that he could not say much, for unfortunately he arrived too late to see the operation, but from what he had heard it was a masterpiece of surgical skill and he would like to congratulate the operator. He desired to say also, however, that "safety first" seemed to him to be a very essential element in major operations, and while he did not want to appear to be throwing cold water on a very delicate operation that had been excellently performed, he personally would prefer to throw his patient. He had found that in doing that one could take more time, so as to be assured everything would work more or less according to plan. If an animal reared when one was half-way through the operation, or if it was not under complete control, it naturally "rattled" the surgeon, and it certainly did not expedite smooth working. He thought that, for a delicate operation of this kind—speaking generally, of course—one should have the animal under complete control and restraint. With regard to Major Townsend's observations as to the possible risk of injury consequent upon casting, he himself had used a special side-line for years, and with the many thousands of cases he had thrown in the open—he hated doing it in small yards or in boxes—he could only recollect the fracture of one leg, and that was not in the act of casting but after, because the animal struggled. Realising the delicacy of the operation to the full, he thought one should make up one's mind to have the animal cast, because it was only by doing that that they could depend upon a 100 per cent. security.

Mr. Caldwell, after expressing the opinion that the operation had been wonderful to watch, asked what method was used for anaesthetising the mucous membranes inside the larynx. He also wished to say how much he had enjoyed

looking round the troop horses and the stables: their visit had been an extremely interesting one and he wished to thank Major Townsend, Colonel Holness and everybody concerned very much for giving them such an interesting and instructive afternoon. (Applause.)

The President said that he wished to add his congratulations to his old college friend on his dexterity. He remembered that they both went in for their Final together, and that he (the President) was given two operations to do, one of which he had never done before or since. He had only one criticism to offer, and that was that the anaesthetic seemed to take rather long to take effect, and there was more haemorrhage than he would have expected.

Invited to reply to the points raised, Major Townsend remarked that one of the first questions that had been asked had been that of the after-treatment and whether or not they should put the horse on pillar reins. He did not know whether they had read the paper he submitted to the Congress last year, but that was one of the points he stressed very much. He considered one of the most important things about this operation in recent years had been the improvement in after-treatment. To tie a horse up on the pillar reins was, in his opinion, almost prehistoric and if they got pneumonia or any other trouble, it was nearly always due to having tied the horse up to a pillar rein or using a general anaesthetic. He gave up doing either 20 years ago, and since then he had never had any suggestion of lung trouble after an operation. One veterinary surgeon of his acquaintance lost two horses from pneumonia, both of them within a very short time, and he was certain it was due to their having been tied up by pillar chains. He mentioned this to the veterinary surgeon, who had discontinued it, and since then he believed he also had never had any trouble. In the Army the practice was to put the horse into a loose-box with straw, and the treatment he had adopted was to leave it there for 14 days, by which time the wound would be completely healed up. For the next 14 days he took it out for walking exercise, for ten minutes at first, gradually increasing the time, and by the end of the month one could start it on riding exercise for, say, another fortnight. That brought them up to six weeks for gradually bringing it into hard work again, and they could start hunting after eight weeks. That was the method they had adopted at Weedon for the last three years, and serious after-effects had been eliminated. He thought the reason why many people did not care to have this operation performed was the amount of rest a large number of practitioners advised after it. It was a very serious thing, especially with thoroughbreds, to take the horse away from work for six months, whereas if they told an owner it would only be out of work for a month or six weeks he would probably have the horse operated upon instead of having it tubed. With regard to oedema of the larynx, that should never happen now. If they did get oedema of the larynx they had either made some mistake in performing the operation, causing injury to the cartilage, or they might by chance have got some infection. He had had it happen in two cases out of about 200 and in both of these not only had the larynx swelled up but the whole of the head as well, within 24 hours of the operation, and he was sure some gas-forming organism must have gained entrance to the wound and set up the oedema. In the two cases in question both recovered in a few days. If they should get a slight difficulty in breathing after the operation or if they should notice a slight smell from the wound, he advised putting hydrogen peroxide on a piece of gauze and swabbing out the larynx through the operation wound, and in most cases they would find it would ease it in a short time. One member had remarked that the operation was a very delicate one and that they had got to have absolute apposition for healing. It was undoubtedly a delicate operation, but the delicacy, he thought, chiefly consisted in removing the whole of the lining of the ventricle. If they did that they would be able to get complete healing. The failures were due, in his opinion, to failure to remove this lining completely.

He quite agreed with Mr. Coleman and Dr. Scott in regard to "safety first," and he would not do the operation on any but a moderately quiet horse. The question as to the excision of the vocal cord was rather a difficult one to answer. Professor Reynolds, he believed, was very much in favour of it and he undoubtedly got very good results; Professor Hobday, on the other hand, was against it, and it was discussed very fully at one of the Midland Counties Association meetings last year. As far as his own experience went—and he had studied the matter very carefully—he really could not see the object of it, for it appeared to him that it had no beneficial effect. It was suggested that one got better drainage, but he thought that was a very minor point.

As regards performing the operation on thoroughbreds, he had only done one thoroughbred himself standing; the others had all been half-breds or hunters, but he saw no reason why they should not do it on thoroughbreds, because most of them were very nearly as quiet or as quiet as hunters. Another question he had been asked was his method of anaesthetising the inside of the larynx. They must be very careful about this. In the recumbent position he always used, for the whole operation, only a local anaesthetic, and if one did not anaesthetise

the ventricle one would notice that the horse would struggle when the mucous membrane was being separated out from its attachment, and it was just the same in the standing position. If they did not anaesthetise the lining of the ventricle the horse would move at the critical moment, and this anaesthetising was best carried out by putting a piece of gauze on forceps, dipping this into "Novutox," and painting the lining of the larynx thoroughly. He used "Novutox" because it was the anaesthetic now issued to them in the Services, and if he used any other he would have to buy it himself; he had, however, given up using adrenalin on roarers for some time now: the haemorrhage was always very slight, and while he found that adrenalin did stop the bleeding in the course of the operation, it was his experience that a day or two afterwards, when the effect had worn off, the arteries would dilate again and they sometimes got haemorrhage that wanted quite a lot of stopping.

He thought these remarks covered all the points that had been raised and it only remained for him to thank Mr. Tutt, their President, and the members for the very kind way in which they had expressed their appreciation of what he had done. He did not suggest that he could carry out this operation any better than anyone else and he was sure any of them would have done it equally well.

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Next Meeting.—In reference to the next meeting, it was announced that the Society had received a kind invitation from Colonel Walker, President of the Aldershot Army Veterinary Association. to hold a meeting at the Royal Army Veterinary School there, when it was hoped to have a paper and demonstration on radiology by Major Oxspring, or some other member of the staff.

The President said he was sure they were very pleased to accept this invitation and suggested that the date be left for arrangement by himself and the Secretary. This was unanimously agreed.

Exhibit.—Miss Cust showed an interesting specimen, from the small intestine of a pony, and there was considerable discussion as to the aetiology of the condition.

Vote of Thanks.—The President proposed a hearty vote of thanks to the Officer Commanding, Troops, Tidworth, and this was accorded with enthusiasm.

Tea was greatly enjoyed by all, and, before leaving, the President, on behalf of the members and visitors, expressed their gratitude to Colonel Holness and the Officers, R.A.V.C., Tidworth Area, for their very kind hospitality.

H. S. Caldwell, *Hon. Secretary.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 7th.—N.V.M.A. Committee meetings, at 2, Verulam Buildings, Gray's Inn, W.C.1: Organising, 12 noon; Finance and General Purposes, 2.15 p.m.; Editorial, 4.30 p.m.

Sept. 8th.—Meeting of the N.V.M.A. Special Committee on Free Services, at 2, Verulam Buildings, Gray's Inn, W.C.1, 11.30 a.m.

Sept. 14th-18th.—N.V.M.A. Annual Congress, Scarborough.

Sept. 21st, 22nd.—Jubilee Memorial Bursary Examination.

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PERSONAL

Professor J. B. Buxton.—The Vice-Chancellor of the University of Cambridge, Mr. G. H. A. Wilson, M.A., Master of Clare College, gives notice that the Professorship of Animal Pathology will be vacated on September 30th by the resignation of Professor J. B. Buxton, M.A., Queen's College, who has occupied the Chair since 1923, when it was first established.

As announced in previous issues of this journal, Professor Buxton will then take up his appointments as Acting Principal and Acting Dean, Royal Veterinary College, London.

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Presentation to Colonel R. J. Stordy.—At a meeting of the Council of the R.S.P.C.A. held on July 16th, the Chairman, Sir Robert Gower, presented the members of the "Silver Star" Veterinary Unit with the following awards: Colonel R. J. Stordy, C.B.E., D.S.O., M.R.C.V.S., the Silver Medal; Mr. Latham and Mr. Lloyd, Bronze Medals, and Mr. Owen, the Certificate for Meritorious Service.*

Colonel Stordy, in replying to the Chairman, thanked Sir Robert and the Council and said that no mission ever left with greater good-will than that of the Council; no mission ever left with such good faith as he had in his staff. Their greatest reward was the Council's gratitude to them. The great work of the Chief Secretary, Colonel Lake, and the staff at headquarters, had earned their life-long gratitude. The unit was grateful to Sir Sidney Barton, British Minister in Addis Ababa, for what he had done.

*In our issue of July 11th (pages 869 to 871) we reproduced, in full abstract, the text of the Government White Paper [Ethiopia No. 5 (1936) Cmd. 5213.] detailing the events during the "reign of terror" after the Emperor of Abyssinia's departure for Djibuti and containing both Colonel R. J. Stordy's vivid report as Refugee Camp Commander and the high tribute paid to his services by the British Consul, Mr. C. G. Hope Gill.

R.C.V.S. OBITUARY

Pollard, Herbert; Warren Terrace, Peterson Road, Wakefield, York. Graduated London, January 5th, 1882; died August 15th, 1936, aged 77 years.

Mr. Herbert Pollard, M.R.C.V.S.

Mr. Herbert Pollard, M.R.C.V.S., whose death we record above with much regret, had practised in Wakefield for over half a century. He was a native of St. Mabyn, Cornwall, but the greater part of his life was passed in the West Riding where his interests were centred. Among the appointments held by the late Mr. Pollard was that of veterinary surgeon to the Wakefield Corporation. This appointment he held for 51 years, and it was only as recently as June, this year, that he tendered his resignation, which took effect on July 14th.

The late Mr. Pollard was a man of wide and varied interests. He was a past President of the Yorkshire Veterinary Medical Society, past President of the Wakefield Naturalists' Society, and a member of the Yorkshire Naturalists' Society. He was also a member of the Wakefield Corporation Library and Museum Committee and the Wakefield Paxton Society.

The funeral took place on August 19th, the interment being at the Wakefield Cemetery, following a service at St. Andrew's Church, conducted by the Rev. A. Ridings (Vicar). In addition to the family mourners, among those present were the following members of the Veterinary Profession: Mr. D. S. Rabagliati (West Riding County Council and President of the Yorkshire Veterinary Medical Society), Mr. E. F. McCleery (Secretary, Yorkshire Veterinary Medical Society), Messrs. A. H. Watson (Bradford), A. McCarmick (Leeds), G. E. Bowman (Leeds), F. C. Scott (Pontefract), J. Pollard (Halifax), and Lieut.-Colonel H. G. Bowes (Leeds).

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LEGAL NOTES

Are Pigeons Vermin? Use of Poisoned Grain Illegal.—At Aberdeen, Sheriff-Substitute A. J. Louttit Laing gave his considered judgment in the case in which Anthony Bellet Davidson, a farmer, Waterford, Methlick, Aberdeenshire, was charged that, between May 14th and 22nd last, he knowingly put or placed or caused to be put or placed in a field partly sown in corn on the farm of Waterford occupied by him, a quantity of corn which had been rendered poisonous by the addition of strychnine, contrary to the Protection of Animals (Scotland) Act, 1912, Section 7 (*b*), rendering himself liable to a fine not exceeding £10 or to imprisonment. Accused had pleaded not guilty.

The Sheriff-Substitute said that the main factors in the case were not disputed. The accused had admitted that he filled a bucket about three-quarters full with grain or seed which had been saturated with strychnine and scattered this over a large field, his object being to destroy pigeons and crows, which were destructive to his crops. The method was effective, because a large number of pigeons and crows were found dead in the field, and in the adjoining wood some 200 pigeons were lying dead, in addition to some partridges and pheasants. On these facts the Crown had asked for a conviction under a section of the Protection of Animals Act, 1912, which constitutes as an offence the putting or placing on land or in a building any poison, either in fluid or edible matter, unless it is placed for the purpose of destroying vermin in the interests of agriculture, and provided all reasonable precautions are taken to prevent domestic animals gaining access to the poisoned matter.

"I am clearly of the view, in the first place, that it is an offence for a farmer to put poisoned seed or grain on his land for the purpose of killing any kind of vermin. What he may use is any fluid or edible matter which has been rendered poisonous. The reason for the restriction on the use of grain is plain. The use of poisoned edible matter can be localised. Edible matter cannot be blown about, and, plainly, precautions can easily be taken to prevent access to it by domestic animals. Seed and grain are, in my opinion, in a very different position. The seed can be blown about in any direction by the wind, and would offer serious danger to animals about the farm. Horses are fond of grain, and a few poisoned seeds might end their lives. The dangerous possibilities have been made plain by Dr. J. F. Tocher (Aberdeen County Analyst).

"I need only add that if Parliament had intended to sanction practices of that kind it would have made that intention clear. In my view it is plain that the scattering of poisoned seed or grain over a field for the purpose of destroying vermin is illegal. Therefore the accused has committed an offence by putting poisoned seed in one of his fields.

"I do not regard wood pigeons and rooks as coming under the category of vermin. I am satisfied that Parliament never intended the term vermin to include any kind of bird-life."

The Sheriff-Substitute said he proposed to convict accused, but being convinced that what he did was done in good faith, admonished and dismissed him.—*Pharmaceutical Journal.*

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Tuberculous Meat Seized: Heavy Fines Imposed.—At West Ham Police Court recently, Miss Emma Whitaker, of Shrover Farm, Denmead, Hants., was summoned at the instance of the West Ham Corporation for depositing for the purposes of sale at Alice Street, Canning Town, certain meat which was unsound, unwholesome and unfit for the food of man. There were 18 informations against her.

James Heal, also of Shrover Farm; Thomas Dilworth, of Denmead; and Albert Horton, of Highfield Villa, Lovedean, Portsmouth, were severally summoned for aiding and abetting in the offence.

Miss Whitaker did not appear, but was represented by Mr. H. W. Wightwick, who also defended Heal, Dilworth and Horton.

Mr. E. C. King, Deputy Town Clerk of West Ham, appeared for the West Ham Corporation.

The evidence adduced was that Miss Whitaker employed the defendant Heal as manager of her farm; the defendant Dilworth was her slaughterman, and the defendant Horton was assistant slaughterman. On Wednesday, July 22nd, Mr. Pearson Page Chamings, assistant sanitary inspector to the Petersfield Rural District Council, received a notification that ten animals were to be slaughtered at Miss Whitaker's farm, where there was a licensed slaughterhouse. Mr. Chamings went to the slaughterhouse, arriving soon after ten cows had been slaughtered, and examined the animals and gave Horton a certificate.

Mr. Chamings told the magistrate that there had never been any complaints about the farm or the slaughterhouse until this case arose.

At 11 o'clock on the night of this slaughtering Mr. Harold E. Bywater, M.R.C.V.S., veterinary officer, and Mr. Herbert G. Clinch, chief sanitary officer of West Ham, went to Alice Street, Canning Town. At 4 a.m. a motor lorry appeared which bore marks showing that it had

come from Shrover Farm, Denmead, Hants. It pulled up near to a butcher's shop managed by a man named Warne. A moment or so later the defendant Horton passed the officials and returned and then Dilworth got out of the lorry and knocked at the door of the butcher's shop. The door was at once opened and Dilworth having spoken to a man, he and Horton at once jumped on the motor, which was started up. Mr. Bywater and Mr. Clinch stopped the men and announced their official position, and they had a conversation with Dilworth. He admitted they had meat on the lorry, and the officials found, in addition to ten carcases which were said to be consigned to Smithfield, there were a number of forequarters and hindquarters of beef. These were tested and after close examination were found to be prepared butcher-wise for the market and to be affected with tuberculosis in an extensive form, the disease being such as must have been obvious before the animals were slaughtered. Among other remarks which Dilworth made was that ten beasts had been slaughtered and certified by the Petersfield inspector, and after that slaughtering four cows were killed. Messrs. Bywater and Clinch accompanied Dilworth and Horton to Smithfield Market, where the ten carcases were expected and duly accepted. The other meat was later seized and was condemned as unfit for food by one of the West Ham Justices.

The defence was that Miss Whitaker had nothing whatever to do with the management of her farm and that on July 22nd, after ten animals had been slaughtered for Smithfield, Heal received a 'phone order for some cats' meat. To comply with this order he killed four cows "which were doubtful." He found that when killed they were not fit for human consumption and they were consigned to a Mr. Warne who had ordered cats' meat. Dilworth said that when he got to Warne's shop Warne told him the cats' meat was to be taken to another address, but as he had seen the two men watching the van, and suspecting they were inspectors, he decided to take away the carcases. He hoped to be able to avoid the inspector because he knew that he ought not to have on his lorry cats' meat with meat intended for human consumption. When the four cows were slaughtered he (Dilworth) cut away from the flesh the tuberculous material.

As a matter of law, Mr. Wightwick submitted that the meat was not deposited at Alice Street as meat for human consumption but as cats' meat.

Disposing of the case, Mr. St. John Morrow, the magistrate, said no one could come to any other conclusion than that all the defendants must be convicted. Miss Whitaker, as the owner of the animals, was responsible in law, and she would be fined £20 on two of the informations against her—the others would remain on the file. Heal also must pay a fine of £20 on two informations and £10 10s. costs. Dilworth and Horton would each be fined £10.—*Meat Trades Journal.*

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CLINICAL MAXIMUM THERMOMETERS

The British Standards Institution, 28, Victoria Street, London, S.W.1, have recently issued the revised British Standard Specification for Clinical Maximum Thermometers (B.S.S. 691—1936). This covers the requirements to be met by a first-grade clinical thermometer for general use.

It has been the general practice for many years to manufacture six main varieties of clinical thermometer—three of these have round stems, and three have stems of "lens-front" section, which provide a magnified image of the fine mercury column. The lens-front pattern has been standardised in this specification. The three types of the round and of the lens-front patterns are distinguished by variations in the size of bulb, the smallest being commonly known as "½-minute," and the larger sizes "1-minute" and "2-minute." These time designations are intended to indicate the time required for the thermometer to take up the true temperature when placed in some organ of the patient. Experience shows that this time is very variable. It is affected by the physical condition of the patient, the skill with which the thermometer is placed in position, the initial temperature of the thermometer, and some other factors. The times which are marked on clinical thermometers can, therefore, be extremely misleading: in some circumstances a "½-minute" thermometer may require well over a minute in which to register correctly. For this reason no time indication is marked on British Standard clinical thermometers. The size of bulb which has been standardised is that which is generally known as the "½-minute" type, and the thermometer will therefore compare favourably in rapidity of action with any other normal type of clinical thermometer.

Copies of this specification (No. 691—1936) may be obtained from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s. 2d., post free.

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EXPERIMENTAL FARM FOR VETERINARY TEACHING

In a recent announcement, the Vice-Chancellor of the University of Sydney (Dr. R. S. Wallace) stated that the University had bought a farm of 400 acres for use as an experimental farm for the development of veterinary studies. The purchase had been made possible through the generosity of the trustees of the McGarvie Smith Institute, who had given £10,000 to the University for the upkeep of the farm.

Dr. Wallace said that the University had been anxious for a considerable time to develop the training it gave to students in veterinary work, because it felt that this work was becoming more and more important to graziers and cattle breeders and the other great primary producers of the Commonwealth. For some years the University had been working in close co-operation with the Council for Scientific and Industrial Research. The McMaster Laboratory, controlled by the Council, was situated within the University grounds, and the Veterinary School was closely associated with the laboratory. The University desired to obtain a practical training ground in the shape of a farm, and for some time it had had the offer of a property of 400 acres adjoining the 800 acre farm of the Council for Scientific and Industrial Research in the Penrith district. By the generosity of the trustees of the McGarvie Smith Institute the University had been enabled to close with this offer.

Both properties would be run in close association for research and teaching in sheep and cattle diseases, pasture improvement, and similar work, which was crying out for attention. The purchase of a farm by the University would make possible great increases in knowledge and promote the solution of the difficulties facing the pastoral industries. The trustees of the McGarvie Smith Institute were greatly to be commended for their foresight.

Erratum.—A correspondent draws our attention to the error, by implication, contained in the statement made in the editorial on Sir Frederick Hobday appearing in our issue of August 15th (page 990), that he remained on the staff of the London College until 1897. Major Hobday did not relinquish his post as Professor of Materia Medica and Therapeutics until the year 1900.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or indirectly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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Statutory Rules and Orders, 1936:—				
85 Diseases of Animals. Sheep Dipping (Special Regulation) Order	0	1	0	1½
91 Milk (Grade A) (Amendment) Regulations	0	2	0	2½
92 Milk (Grade B) (Amendment) Regulations	0	1	0	1½
93 Milk (Grade C) (Amendment) Regulations	0	1	0	1½
814. Animal. Diseases of Animals. The Foreign Hay and Straw (Amendment) Order, dated August 12th, 1936	0	1	0	1½

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Major A. C. Duncan (Cirencester), Mr. I. Fundaminsky (Jerusalem), Mr. H. E. Jackson (Hayes), Dr. A. W. Stableforth (London), and Dr. W. R. Wooldridge (London).

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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"SOUND IN WIND AND EYES"—"A GOOD HUNTER"

To the Editor of the Veterinary Record

Sir,—I do not wish to pursue this subject beyond reasonable limits, neither have I any desire to shoot at Mr. Cochrane-Dyet, but to get down to facts.

In his letter of July 13th, apart from asking the opinion of the profession, he made a definite statement that he found heart disease of varying degrees—not simple dilatation, but disease of quite long standing—and in his letter of this week, he speaks of abnormalities of the heart.

Being interested in the diseases of the heart of all animals, including man, I should like to know to what particular diseases of the heart Mr. Cochrane-Dyet refers, and in what degree—also the technique he employs in order to arrive at his diagnosis.

If anyone presented to me a certificate stating that an animal was suffering from heart disease, I should refuse to accept it unless the examiner stated the particular disease.

If the heart is examined first and found to be affected with any disease, surely it would be unwise, and from a legal aspect unsafe, to proceed to examine the horse for its wind.

Yours faithfully,
J. P. Railton.

The White House,
Kington,
Herefordshire.
August 23rd, 1936.

Diseases of Animals Acts
SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th August, 1936	16	19	—	—	5	6	7	71	32
Corresponding period in 1935	8	10	—	—	2	2	8	72	56
1934	15	18	—	—	2	3	26	64	30
1933	11	16	2	9	—	—	13	32	28
Total 1st January to 15th August, 1936	304	360	4	379	82	223	154	1,303	921
Corresponding period in 1935	233	270	34	10,208	81	166	214	1,254	738
1934	247	273	2	93	94	156	378	1,038	647
1933	184	210	58	5,359	102	178	225	970	589

Note.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.